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ABSTRACT

Described is a preschool intervention demonstration project for emotionally disturbed children said to be based on the functional analysis of behavior and behavior change. The project's organizational patterns and procedures are compared to those described by B.F. Skinner in Walden Two. The description emphasizes the concepts of measurement and educational accountability as they pertain to the project. The measurement based treatment system is said to be organized into modules or task forces around a coordinating module. A major goal of the project is demonstration of coordinated regional early intervention system that is more economical than custodial care. The project emphasizes parent role in the intervention project. The child's mother is taught to record data on the child's progress and to elicit the desired responses from the child. Modules available include the individual tutoring module to produce functional speech, the oppositional child training module, visitation module, administrative and clerical module, transportation module, and media presentation module. Explanation of project accountability entails a clarification of the line of authority from the state governor to the project evaluation committee. The evaluation committee meets monthly in order to request information from the coordinating module, to evaluate it, and to render binding opinions concerning the adequacy of program results. (CB)

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Preschool Intervention:
A Behavioral Service Delivery System

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The service delivery system that we shall discuss is the Regional Intervention Project for Preschoolers and Parents, in Nashville, Tennessee. Before we begin what necessarily must be a very sketchy overview, some background on the project will provide helpful context for the points we will emphasize.

The project is funded as a demonstration project by the Bureau of Education for the Handicapped under the Handicapped Children's Early Education Assistance Act. Pilot activities began in the fall of 1968, but the project has been funded for only the last two years. The first ten months were on a $29,000 planning grant. For the past 14 months we have had operational funding at $100,000 per year, including indirect cost. The grant was originally to Peabody College, but was transferred this year to the State of Tennessee to facilitate continuation as a State service. To date, some 106 families have been served.

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Clearly, the project is neither a high budget service operation nor one funded for research. Its demonstration mission, its budgeting constraints, and its short period of operation rule out certain questions. From the researcher's viewpoint we must be viewed within the context of discovery, not the context of justification. A recent evaluative survey contracted by the U.S. Office included the project as one of a dozen exemplary programs for

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emotionally disturbed children in the country. A conclusion reached, however, was that it merits funding for evaluation far beyond its current capability.

From the standpoints then, of outcome research in psychotherapy, or of decision analysis in operations research or systems analysis, or of component analysis in the applied analysis of behavior, we have no adequate data and few resources with which to derive any.

What we do have is an entire service delivery system based on the functional analysis of behavior. That is, the methodology and procedures presented here this morning by previous speakers are being used to provide routine process monitoring and feedback for all cases in a whole clinic that has no research budget and has to function economically if it is to survive as a state service. In addition, because of budgetary and professional manpower limitations, and because of the need to efficiently achieve generalization to the natural environment, the measurement based monitoring system is being used to conduct a social experiment. The Tennessee Department of Mental Health provides the citizens of the state with a permanent organizational structure, with support for that structure, and with continuity of information within that structure, but the citizens themselves implement the organization to provide services to their children to their own satisfaction. In short, three master's level special educators, two secretaries, and some consultants function as resource persons for a system completely implemented by parents and volunteers. The organizational patterns and procedures are those described by Skinner in Walden Two.

If our experience to date is an adequate guide, you would like at this point a description of how such a citizen-implemented system operates.

our very brief overview this morning we shall attempt to stress only two concepts: measurement and accountability.

With regard to measurement, we had a choice to make because of the time contraints of this presentation. We could have utilized single subject and summary data and followed the JABA practice of speaking only about the graphs. To do so would have presented a neat picture of methodological respectability, but, we felt, would have been of relatively limited value. Instead, therefore, we have elected to attempt to place our activities in a wider perspective and to point up some emerging research needs within the field of applied behavior analysis. Consequently, as you will have noted by now, we are displaying graphs of individual cases to show that we indeed have them. Our hope, however, is that they will function primarily as positive S^D's for your close attention to what is being said.

A comment on causality and replication is needed before we turn to a description of the project treatment system. Each aspect of the project can be explained in terms of the feedback that led us to it, but one of our principal points is that such explanation is probably irrelevant. We doubt that attempts to replicate procedures in detail are realistic. In contrast, overall strategies are probably crucial. The necessary strategies of measurement and accountability create the essential elements for the management of behavior: the definition of responses and events made contingent upon those responses. Consequently a replicator who adopts these strategies will be forced to contrive a service system that is functionally equivalent
end 50→ to ours. Suffice it to say, then, that measurement of child progress, coupled with being accountable to trained parent consumers, shaped to its present form each aspect of the service delivery system we will now describe.

We shall describe first the measurement based treatment system. It will be helpful for you to understand that at its operations levels the project is organized into modules or task forces around a coordinating module. Each module implements some molar function in the system. We will then turn to a description of the vertical structure to explain how accountability is achieved.

Coordinated services for the very young severely behavior disordered child are almost non-existent in the United States. Consequently a family with such a child faces years of at least dislocated relationships and constant stress. A major goal of the project is to demonstrate a coordinated regional early intervention system that operates more economically than even custodial care. For purposes of records keeping and assignment of case responsibility, children are tracked through the project, but in terms of patient status the individual family is the smallest system served.

The children's problems are of course defined interactively, as opposed to one sided categorizations. The project admits families on the basis of professional judgement of the risk for extended care inherent in child-environment interactions, given that the ability of all other management systems to positively alter those interactions significantly has been exceeded. The focus is on children under 36 months old. Families are seen usually from 20 minutes to 48 hours after first contact.

Information sufficient to determine an initial approach and tentative target response class is assembled about the child and his environment, often within ten minutes. Detailed functional analyses of behavior and any indicated specialist examinations are made later, on-line, as part of active intervention. The family is guided by a parent trained to give information

about the project. She uses a slide show describing the project, including the intake process in which the family is involved. The family next sees actual operations and talks to other parents in order to hear the viewpoint of those currently being helped. The parent participation requirement of devoting at least four hours per week to project implementation is also explained.

Only after this information is given does the family make a decision on participation in the project. As soon as they join personnel who are successfully dealing with similar problems are assigned to provide support.

A child deficient in his ability to communicate appropriately is assigned first into the individual tutoring module. The module's goal is to produce functional speech in the child as a means of teaching his parents to teach him and also to directly increase his repertoire of adaptive behavior. The techniques used are those researched originally by Baer, Peterson, and Sherman and by Risley and Wolf. Depending on the child's level, training may begin with attending behavior, motor imitation, vocal imitation, verbal imitation, naming of objects, or more complex tasks such as prepositions.

The child's mother begins by learning to record data on her child's progress. Within a few daily sessions mother herself becomes the teacher as well as the pupil. Very soon she alone works with her child. As soon as she has taught her child a few responses within a response class, she begins to teach him at home every day. She also teaches his father as she herself was taught by starting him on scoring the sessions. The child learns at home while his mother merely demonstrates progress and confers on procedures in the clinic as determined by her own and her child's needs.

As in the cases others have reported for research purposes, imitation and speech training experience has been repeatedly found to be an effective

method of teaching parents. Once skilled in these procedures, most parents can, after some in clinic or at home demonstration, not only teach skills like toileting and dressing, but also abide very well by the project's rule for generalization of learning: "any desirable behavior that the child learns anywhere is thereafter required and reinforced everywhere."

To date about half the families who have entered the project have not gone into the individual tutoring module. These families have children with normal or even above average communication skills. The children are characterized often by tantrums and unmanageability so severe as to have brought the family near collapse. Wahler, the original researcher of the procedures the project uses with these families, called these children "oppositional." We still refer to the module as "oppositional child training," but as explained by Ora & Wagner (1970) we view the problem as acute and interactive. Although at times we see clear biological influences in the interaction, organic impairment is seldom a major concern and the problem does not reside in the child. "Toddler management training" would be a better descriptive term for our procedures.

Like the individual tutoring module, the misnamed oppositional child training module is completely run by parents. In its procedures parent and child participate in a twenty minute structured play situation. In this situation the parent attempts to have the child change toys every two minutes. Through Baseline, Intervention I, Reversal, and Intervention II the parent-child interaction is analyzed via continuous data recording. The parent is taught how to obtain cooperation by altering the timing of attention contingent on child behavior. As in all the service modules, procedures are designed to teach the parents what to do at home.

When the parents achieve an awareness that primary responsibility for their child's progress rests with them, the family is moved on to the model preschool if they would be well served by it. There the teacher assumes case responsibility for the family and also develops an individualized program of instruction for the child. The classroom activities combine the goals of Weikart's cognitively oriented curriculum and Berieter and Engleman's language training program with the classroom procedures researched by Allen, Baer, Buell, Harris, Hart, Risley, Wasik, and Wolf. Child progress is evaluated on a day to day basis by recording behavior along dimensions in line with instructional objectives. When a child has demonstrated mastery of the basic skills for his age or reached stable rates of acceptable behavior, he is referred to the liaison module for future placement.

As the child becomes ready for return to community systems, the issue of an appropriate match between family and community systems arises. The liaison personnel maintain an empirically evaluated listing of placements appropriate for various children. They consult on available systems and investigate possible placements. When the child moves on to another primary educational system, which for many two year olds is of course the home, the liaison personnel assume responsibility for the family. The liaison personnel may coordinate continued home teaching programs begun by other modules. They may actively assist a teacher in programming for the child placed in her class. They also conduct periodic surveys of all children no longer primarily served by the project. Should the family encounter further difficulties, the liaison personnel are the link to the support or intervention systems needed. Through the liaison personnel the project maintains an open-ended, reciprocal committment with all the families served.

The modules we have described comprise the treatment system at the operations level. On this same horizontal plane the treatment system is supported by other modules such as visitation, administrative and clerical, transportation, and media presentation. The operations level is measurement-based in its technical and its managerial systems. To describe how the project is made accountable, however, we must turn to an examination of its vertical structure.

The line of authority proceeds from the Governor of Tennessee to the Commissioner of Mental Health to the Director of Children and Youth Services to the Coordinator of Preschool Services. These positions direct the usual bureaucratic structure at the state executive, department, division, and branch levels, respectively. The bureaucratic structure ceases, however, within the office of the Coordinator, Preschool Programs Branch. This office interfaces the project with the bureaucracy. The next office in line authority within the structure is that of the Project Evaluation Committee. At least half of this committee will always be parents selected by a method known to themselves. They are of course The Planners from Skinner's social system. Other members serve at the Planners' invitation, for two principal reasons. First, they can provide technical help or professional skills as needed. Such assistance can also be obtained from consultants, however. The more important reason for adding citizens other than parents is to add community influence to the committee, since it was administratively and not legislatively authorized.

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The Evaluation Committee meets at least monthly. It may request any information from the coordinating module, evaluate it, and render a binding opinion regarding the adequacy of program results. Thus far the committee

has chosen to use a mix of standard questions, such as a routine request for evidence of observer reliability, and questions specific to the activity under examination. The basic questions that will be asked are communicated to the Project Coordinator well in advance of the meeting date. The Coordinator is responsible for demonstrating adequate program results to the Committee, in the opinion of the Committee, usually in terms of measured child and family progress. The Coordinator, however, retains full authority over the conduct of operations or the manner in which she obtains results satisfactory to the Committee. Thus project personnel are left free to develop their own methods and styles of achieving results, but the system is accountable in terms of results to those it serves.

We have presented a service delivery system based on the necessary elements of measurement and accountability. It can be done. The applied analysis of behavior provides the technology needed to operate. We shall next point out some insufficiencies and begin, only by implication, a description of not just what is necessary but of what might be sufficient for such a system to be repeatable. To do so we need first to place the service delivery system in the context of the development of the applied analysis of behavior along a non-applied to applied dimension.

The applied analysis of behavior has developed in a series of levels of application. First came the laboratory confirmation with children of some empirical generalizations from learning theory. Here the theory came first. The situation was contrived. Some of Baer's earlier work is illustrative of this approach.

Then came another level of exposition of conceptual points in which a problem came first and principles were invoked to solve it and were

demonstrated in passing. Wolf, Risley, and Mees' work with the autistic boy who threw his glasses is one of the earliest and best known demonstrations at this level. Many persons would define "behavior modification" as consisting of this level.

They overlook, however, those situations in which the principles have often been demonstrated and the technology is reasonably efficient. At this level, as Risley (1969) has pointed out, behavior modification becomes primarily the application of measurement to applied problems. Much of the work with token economies and classroom management techniques has already reached this point. It is noteworthy that symposia are beginning in these specialities under the general rubric of "where do we go from here?" while the current research may be somewhat repetitive.

At the same time the overall social impact of the prior levels has been pitifully limited. It should come as no surprise to this audience that generalization needs to be programmed. Consequently, as you have seen, we have gone to the next level of application, creating entire service delivery systems based on the new technology and seeing these systems through to routine administration by ongoing social systems.

For development of service delivery systems the work done at previous levels of application provides what is necessary, but it is far from sufficient. For example, we all know when a graph of behavior change is believable and we have editors, colleagues, and audiences to keep our behavior shaped to the right topography. But the citizen worker or the isolated practioner is less exposed to such contingencies and needs some other form of guidance. If only to facilitate the adoption of measurement monitoring in service delivery systems, we badly need guidelines for decision making in case

management that address themselves to such issues as evaluation criteria for rate of change.

As another example, we need an agreed on conceptual framework within which we can translate our single subject data into summary form for purposes of program evaluation. We believe that some method of translation into dollars as the dependent variable may be the most fruitful, perhaps for process decision making as well as for summative evaluation. If we could translate behavior change into cost benefit terms we would promptly have all the work previously done in management science at our disposal. For service delivery systems development a knowledge even of popular management publications like the works of Peter Drucker is much more immediately useful than a knowledge of say, the details of the effects of tandem schedules.

As another example, we need to extend Sidman's methodological work into data control that takes the systemic context into account. He specifically took conditions in other laboratories into account when evaluating data. He neglected, however, to stipulate what to count about these other systems and how. We need an integration of measurement procedures with systems analysis that will enable us to assemble weighted data from various sources and derive reliability indices, perhaps from some form of discrepancy score. Our present reliance on independent observers is inadequate for system monitoring because of cost and other considerations.

One of our most urgent and immediately answerable needs is for automated instructional systems that will maintain a consistent level of available information in citizen-implemented service delivery systems. If we had, for instance, audio-visual information systems to convey even our present technology and methodology that is applicable for developmentally disabled

preschoolers, we could begin coordinated service delivery systems in at least four states within this year. The longer we experiment with a citizen implemented system, the more convinced we become that any recurrent information transmission process should be automated.

As a final example, in service delivery systems development we need a means of measuring some subtleties of human behavior, especially adult behavior contingencies. We can monitor our own system by viewing adult behavior as part of a chain leading to measurable child improvement. When the improvement is lacking, we can track back and locate the deficiency. The problem and the impediment for replication arises when we have to explain to others how to go about it and what to look for. Much work has been done already. In a sense we know what to count. Skinner provided global descriptions, especially with some examples in Walden Two. McGregor in The Human Side of Enterprise provided more specific examples in lay terms. We need now some work on the applied analysis of adult social systems based on secondary reinforcers, or an operant social psychology, if you will.

In conclusion, we are out of laboratory and the residential setting. Our existing measurement technology is adequate for social engineering, at least with the families of handicapped preschoolers, provided that an accountabilit system is set up to ensure positive reinforcement. At the same time we are encountering knowledge problems and software problems that hinder analysis and transmission of our procedures. Hopefully our increasingly precise delineation of these problems will in part answer for those concerned with research at less immediate levels of application the question of "where do we go from here?".